NRCS United States Department of Agriculture Natural Resources Conservation Service

Plant Materials Program

Solutions for Agriculture

The 21st century has arrived like a lion, bringing with it remarkable changes and challenges to agriculture throughout the country. The agricultural community is faced with ever-increasing pressures from environmental regulations such as the Clean Water Act and Endangered Species Act, invasive species, and growing competition for limited fresh water from surface and ground water supplies. High land prices coupled with low product returns are driving many farmers and ranchers to search for alternative ways to diversify and intensify their operations to maintain a rural lifestyle. The USDA Natural Resources Conservation Service is working through its 26 Plant Materials Centers (PMCs) to select new and improved plant materials, and to develop new technology to mitigate many of the challenges facing agriculture.

Water Quantity and Water Quality

Agricultural irrigation controls a majority of water resources. Water conservation needs will grow as demands for water increase with population growth. It is imperative that the agricultural industry explore irrigation practices that have greater efficiency in order to reduce future conflicts. Converting to lower-water-use plants for hayland and pasture has proven beneficial in some areas, and may allow leasing of saved water for municipal or other uses.

Streams are now subject to water quality standards by law. To address problem areas along streams and on agricultural lands, PMCs are collecting, testing, and releasing new native plants such as willows, sedges, and grasses. Stable stream zones mean cleaner water. Establishing wetlands with appropriate plant life provides opportunity for treating agricultural water carrying pollutants. PMCs are achieving better water quality with the testing and release of more improved species.

Native Plant and Invasive Species

Extensive acreage across the country is being lost to costly problem weeds. The economic impact of weeds on the U.S. economy is estimated at $137 billion annually. PMCs are selecting plant materials that ward off the invasion of these weeds and can be used for restoring areas once dominated by invasives.

Increased public emphasis is directed towards inclusion of native species in seedings to resist weed invasion, enhance biodiversity for wildlife, and reseed millions of acres of rangelands and forests impacted annually by wildfire. Since there is a critical shortage of commercially available seed of native species as well as reliable information on techniques for handling seed and seeding, PMCs are collecting and testing native species that show promise within their service areas.

Biofuels and Carbon Sequestration

Experts predict that energy produced from fossil fuels will peak by 2020, presenting a challenge to find alternative energy resources. Agriculture stands to benefit by becoming a major producer of alternative fuels such as biofuels from woodlots to supply small power plants and crops that can be utilized in the production of synfuels such as methane and ethanol. A variety of biomass-producing plant materials, such as selected perennial grasses and fast-growing trees, are rapidly emerging in the agricultural marketplace. PMCs are addressing the development of plant materials that will accommodate energy needs while considering water conservation and other objectives.

In some regions, a new opportunity is evolving that will permit contracting acres of permanent pasture and other perennial species to sequester CO^2 generated from coal-fired power plants and other air polluting activities. PMCs are studying plant materials, such as warm-season grasses, to determine those most effective at sequestering CO^2 while providing for basic agricultural needs.

For more information, visit **http://Plant-Materials.nrcs.usda.gov** and **http://www.nrcs.usda.gov**

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